2014
annual report

14 Northport

Northport
Wastewater Treatment Plant

CH2MHILL®

14 Northport

2014 annual report

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EXHIBITS

PROJECT DESCRIPTION

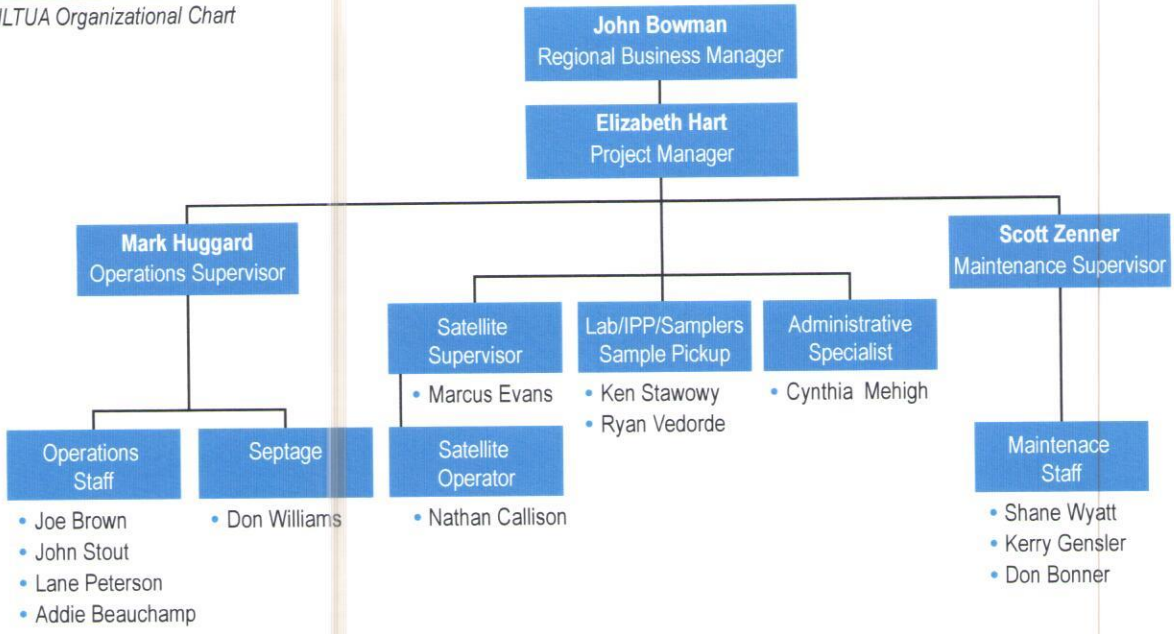
The Northport wastewater treatment plant (WWTP) is a 0.132 million gallons per day (mgd) plant that treats an annual average of 0.053 mgd of wastewater. The wastewater is collected in the system by gravity sewer and low pressure force mains. Two lift stations help push the water along to the Main Street pump station. From the Main Street pump station, water is pumped to the treatment plant. When the wastewater reaches the treatment facility, the water gravity flows through the treatment processes. Starting at the fine screen unit, water then flows to the primary anoxic basin and Moving Bed Biological Reactor (MBBR). After the MBBR, the water flows to the settling basin where solids are settled and pumped to the solids handling basin. The settling basin effluent then flows through the polishing filters, before final dosage into the rapid infiltration beds.

Project Background

CH2M HILL began operations from startup of the plant, three lift stations, and collection system including residential grinder pumps in 2008. Since 2008, we have made upgrades to the treatment plant to increase treatment efficiency, decrease vulnerabilities, and reduce likelihood of emergency calls. The following is a list of upgrades:

- Installed a 7-day timer to allow the decant pump to run in auto at set times, rather than being manually initiated. The level of the basin is set with a float switch, if the switch isn't made it will bypass the timer and stop the decant pump from running. After some experimenting, we found the plant best handled decant flows at short intervals throughout a 24 hour day. Right now, the timer is pumping in 30 minute increments every 3 hours. This has improved our phosphorus control, as well as total suspended solids (TSS) in our effluent.
- We have had plant backups in the MBBR cells caused by screens blinding off and a failed mixer. This prompted us to make a few adjustments to the system.
- We added a high level float in the primary anoxic basin that we tied into the alarm call out for the Cavitation Air Flotation (CAF) unit.
    - We installed two 1½" air ports in the main air headers on the MBBR, including shut off valves and quick connects. Allowing us to simply attach an air hose and reach all of the screens needing to be air blasted.
    - Added a load selector switch relay for the reject pumps. This allowed us to select a pump to run in lead. When we have to remove a pump from service, an alarm would not be triggered, as it was with the old relay that cycled the lead pumps every other pump cycle.
- Removed the old, corroding, and leaking ferric feed hoses and replaced them with schedule 80 PVC lines. They were configured so we can pump to any feed point with any pump.
- Replaced the current desiccant dryer for the compressed air system with a refrigerated dryer. This has resolved the moisture issue in the airlines, which was the cause of some of our emergency calls. We also added heater units in the sand filter air cabinets to keep them from freezing in the event water gets through.

NLTUA Organizational Chart



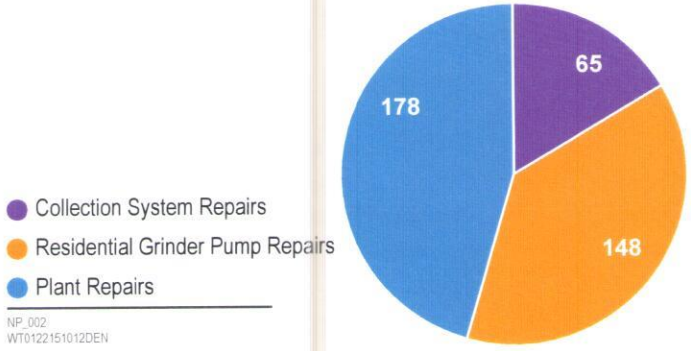
Our Traverse City-based staff, who also support Northport, include:

- Project Manager, Elizabeth Hart [Michigan Department of Environmental Quality (MDEQ) A, L2, F4, and Stormwater)
- Maintenance Supervisor, Scott Zenner (MDEQ C)
- Operations Supervisor, Traverse City Plant, Mark Huggard (MDEQ A, L2, F4, S4, and Stormwater)
- Satellite Supervisor, Marcus Evans (MDEQ A)
- Laboratory Analysts, Ken Stawowy (MDEQ A, Stormwater), Ryan Vedorde (MDEQ A, and L2)
- Administrative Specialist, Cynthia Mehigh
- Operators, Joe Brown (MDEQ B), John Stout (MDEQ C), Nathan Callison (MDEQ C), Lane Peterson (MDEQ D, F4, and S4), and Addie Beauchamp (MDEQ D)
- Mechanics, Don Williams, Kerry Gensler, Don Bonner, and Shane Wyatt (MDEQ L2, S3, D3)

Repair Hours for January – December 2014

Monthly	Collection System Repairs	Residential Grinder Pump Repairs	Plan Repairs
January	9.5	2.6	51
February	5	9.2	
March		4.8	14
April	1.5	16	55.1
May		2.5	3.5
June		10.8	9.9
July	1	1	6
August		73.4	6.5
September	10	13.5	
October		0	8
November	25	1	18.6
December	13	13.5	5.4
Grand Total	**65**	**148.3**	**178**

Repair Hours Summary 2014



PERFORMANCE

The Northport WWTP continues to produce quality effluent. We strive to meet our goal of perfect compliance and perfect reporting of non-compliance. This is accomplished by the use of various programs and tools to provide diligent reporting and recordkeeping, and completing preventive and corrective maintenance in a timely manner. Our staff utilizes our Maintenance Connection program to schedule daily, weekly, monthly, quarterly, and annual preventive maintenance tasks. Maintenance Connection is also used to initiate corrective maintenance work orders performed by our qualified maintenance department. For items outside our area of knowledge, the maintenance department seeks the advice of CH2M HILL regional support, or coordinates with qualified local professionals.

CH2M HILL strives for zero safety incidents. We continue to provide safety training to staff with weekly safety meetings, as well as safety tailgate meetings before any project.

COMMUNITY INVOLVEMENT

As members of the community, we continue to provide tours for local residents, MDEQ, community leaders, members of the Michigan Rural Water Association, and many others.